Land Use and Cover Change to Agriculture in Wetlands: a Case Study Analysis of Yala Wetland in Kenya.

Kelvin Muli, Nzula Kitaka, Julius Kipkemboi (Kenya) and Risper Ondiek (Kazakhstan)

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SUMMARY

Wetlands are highly productive ecosystems that provide essential resources for riparian communities, and offer vital ecosystem services such as water purification, flood prevention, and cultural benefits. The steady conversion of wetlands into agricultural land to meet increasing food demand is a major driver of wetland loss in developing countries. However, there is limited research on the impacts of agriculture-driven land use and cover changes on wetland loss. This study used satellite imagery to determine spatio-temporal change of agriculture in Yala wetland in Kenya between 1990 and 2023. LANDSAT ETM satellite images for 1990, 2000, 2010, and 2023 were acquired from the U.S Geological Survey Centre for Earth Resources Observation and Science (USGS-EROS). The results showed that between 1990 and 2023, the wetland area reduced by 35% with 7% being converted to cropland, at the cost of various other land cover types: 6.3% of shrubland, 6.4% of grassland, 7% of wetland, and 0.1% of water bodies were converted into cropland. By 2023, cropland had expanded by more than 21%, shrubland had decreased by 10%, bareland had decreased by 3%, grassland had increased by 4%, water body had increased by 1%, and settlements had increased by 2%. The study concludes that the significant loss of Yala wetland due to agricultural expansion underscores the urgent need to balance food production with the conservation of vital ecosystem services and biodiversity. This study recommends that the steady conversion of Yala wetland to agriculture requires careful consideration to its significance in biodiversity conservation and the diverse ecosystem it provides.